C2

6. (Amended) The labeled probe molecules of claim 1, wherein the nucleotide analog is 2-amino purine.

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16. (Amended) A method for assessing the presence of a target molecule in a cell or tissue sample comprising the steps of:

a. providing a microarray having a surface area comprising attached labeled probe molecules in quadrants, said labeled probe molecules including at least one nucleotide analog capable of fluorescence;

b. detecting fluorescence from said at least one nucleotide analog capable of fluorescence expressed within quadrants a first time;

c. applying a sample comprising unlabeled target sequences to the microarray;

d. providing a sufficient condition and time for target molecules to selectively pair with complementary labeled probe molecules;

e. detecting fluorescence from said at least one nucleotide analog capable of fluorescence expressed within quadrants a second time;

f. comparing the fluorescence expressed between the first time and the second time for each quadrant;

g. repeating steps c - f until levels of fluorescence approach zero and/or about background levels; and

h. the difference between fluorescence in that of step f and that of step c identifying a target/probe pair.

17. (Amended) A method for quantifying the amount of a target molecule in solution comprising the steps of:

a. providing a first substrate having a surface area comprising a known number of labeled probe molecules, said labeled probe molecules include at least one nucleotide analog capable of fluorescence;

b. detecting a first level of nucleotide analog fluorescence expressed by the labeled probe molecules on the first substrate;

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c. contacting the first substrate with a volume of sample containing unlabeled target nucleotide sequences;

d. providing a sufficient condition and time for unlabeled target molecules to selectively pair with the labeled probe molecules;

e. removing the first substrate and detecting the level of nucleotide analog fluorescence expressed by said known number of labeled probe molecules after exposure to the sample containing unlabeled target molecules;

f. where the level of nucleotide analog fluorescence expression of the first substrate is substantially reduced to levels substantially similar to background levels, repeating steps a. through e. with subsequent substrates, having surface areas comprising known numbers of labeled probe molecules; and

g. calculating the amount of target molecule in the volume of sample by adding the known number of labeled probe molecules present on the first substrate and subsequent substrates contacted with the sample, wherein the levels of nucleotide analog fluorescence expression of the substrates are reduced relative to the levels prior to contacting the sample.

C4

19. (Amended) A substrate having a surface area divided into quadrants comprising:

different nucleotide probe molecule sequences bound to the surface area, wherein different nucleotide probe molecule sequences are bound to distinct quadrants;

the nucleotide probe molecules being a single stranded form or double stranded form, said nucleotide probe molecules having incorporated nucleotide analogs that fluoresce, wherein the level of label expressed from the single stranded probe molecules is greater than the level of label expressed from the double stranded probe molecules; and

wherein the nucleotide probe molecules have an ability to hybridize to target nucleotide sequences.

20. (Amended) A method for monitoring the hybridization of target and probe by complementation, comprising :

C4

a. incorporating fluorescent nucleotide analogs into probes;

b. detecting a first level of fluorescence emanating from probes of step a;

d. hybridizing a target with said probes thereby forming a probe-target complex;

e. detecting a second level of fluorescence emanating from said probe-target complex after hybridization of probe and target;

f. comparing the first and second levels of fluorescence between that of step b and that of step e, and wherein said difference between second and first levels is less than said first level of step b;

g. washing of unhybridized target; and

h. repeating steps d - g until the difference between the first and second levels of fluorescence approaches approximately zero and/or about background levels.

22. (Twice Amended) A method for monitoring the hybridization of a probe and a target comprising, a fluorescently labeled probe, said fluorescence being provided by a nucleotide analog capable of fluorescence and is incorporated, thereby providing a detectable first level of fluorescence and providing a detectable second level of fluorescence when the labeled probe is hybridized to a complementary unlabeled target, wherein the second level is lower than the first level.

C5

23. (Twice Amended) A method for monitoring the hybridization of a probe and a target comprising supplying a fluorescently labeled probe, said fluorescently labeled probe being fluorescent due to the incorporation of at least one nucleotide analog thereby providing a detectable first level of fluorescence, and providing a detectable second level of fluorescence when the labeled probe is hybridized to a complementary unlabeled target, wherein the second level is significantly lower than the first level.

24. (Twice Amended) A method for monitoring the hybridization of a probe and a target comprising supplying a fluorescently labeled probe, said fluorescently labeled probe being fluorescent due to the incorporation of at least one nucleotide analog capable of fluorescence, thereby providing a detectable first level of fluorescence, and providing a detectable second level of fluorescence when the labeled probe is hybridized to a complementary unlabeled target, wherein the second level is approximately zero.

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25. (Twice Amended) A method for monitoring the hybridization of a probe and a target comprising supplying a fluorescently labeled probe, said fluorescently labeled probe being fluorescent due to the incorporation of at least one nucleotide analog capable of fluorescence, thereby providing a detectable first level of fluorescence, and a detectable second level of fluorescence when the labeled probe is hybridized to a complementary unlabeled target, wherein the second level is approximately zero and the first level is greater than zero.

26. (Amended) A substrate having a plurality of probes, wherein said probes are fluorescently labeled, said fluorescently labeled probes include incorporated nucleotide analogs that fluoresce and whose florescence is utilized to measure or detect presence or hybridization of complementary, unlabeled molecules, the labeled probe providing a detectable first level of fluorescence.

27. (Twice Amended) A substrate having a plurality of probes, wherein said probes are fluorescently labeled by incorporation of at least one nucleotide analog, the labeled probe providing a detectable first level of fluorescence, and when hybridized to a complementary target providing a second level of fluorescence, wherein the second level is lower than the first level and said levels of fluorescence being derived from excitation of said at least one nucleotide analog .

C6

29. (Twice Amended) A substrate having a plurality of probes, wherein said probes are fluorescently labeled by incorporation of at least one nucleotide analog, the labeled probe providing a detectable first level of fluorescence, and when hybridized to a complementary target having no nucleotide analogs incorporated therein, providing a second level of fluorescence, wherein the second level approaches zero.